

## KARWINSKI'S ITINERARIES IN MEXICO, 1827-1832 AND 1841-1843

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Much of the early botanical exploration of Mexico was carried out by Europeans who came to America for the purpose of collecting plants, which were then taken back to European gardens and museums. Of all the botanical specimens collected in Mexico before 1875, few remain in that country. Of all the thousands of new species of plants described from Mexico in the 19th century, hardly any is represented by a holotype in Mexico. Most of the early holotypes are in London or Paris or Geneva or Madrid or Brussels or some other European city. Because these types are so important in the proper interpretation of Mexican species, it is also very important for us to know where the early travelers went in Mexico, and where they collected plants.

In the years following the establishment of the Mexican republic, that is to say especially in the years between 1825 and 1850, a succession of industrious and dedicated European collectors worked in Mexico and took out large collections of herbarium specimens. Most of the work of these early collectors was concentrated in Veracruz, Hidalgo, and Oaxaca. One of the earliest, still little-known to botanists, was Wilhelm Friedrich Freiherr von Karwinski von Karwin. He was born February 19, 1780, in Hungary, into a family of the Central European nobility, and died March 2, 1855, shortly after his 75th birthday. He was educated in Vienna, became a mining engineer of some distinction, then after working more than a decade in Spain he inherited some property in Bavaria and moved there in 1815. He became interested in traveling to America, and after unsuccessful attempts to associate himself with the Brazilian expeditions of Martius and later with those of Langsdorf, he visited Brazil, apparently at his own expense, in 1821-23. His later trips, to Mexico, were at the behest of mining interests in Europe or with the support of scientific societies or academies. A brief account of his life was published by Urban (Mart. Fl. Bras. 1, pt. 1: 35, 1906).

Karwinski's death elicited a brief obituary including a reference to his 5-year botanical expedition to "Oaxaca," and to the many plants, especially cacti, that he had introduced into European gardens (Flora 38: 160. 14 Mar 1855). Historians both before and after his death have treated him very briefly. Lasègue (1845, p. 212) says merely that Karwinski was in Mexico from 1827 to 1832, and mentions 8 localities in Oaxaca where he collected. In another note (p. 469) Lasègue says Karwinski travelled in Veracruz with Liebmann from February to May, 1841. Hemsley (1887, p. 123) says that Karwinski was sent to Mexico in 1826, and remained five years, "chiefly in the province of Oaxaca," and about "Ixmiquilpan, Zimapan, &c." Hemsley says further that Karwinski made a second trip to Mexaco, 1840-1843.

Karwinski's first expedition to Mexico seems to have been supported at least in part by what Hemsley calls the "German-American Mining Society of Dusseldorf," that is, the *Deutsch-amerikanischen Bergwerksverein zu Elberfeld*. There seems to be general agreement that the botanical collections from this trip went to the Botanical Garden in Munich.

The *Acquisitions-Journal* at the Botanische Staatssammlung in Munich shows that from 1832 to 1838 Mexican plants were purchased from Karwinski at five different times. One accession included collections in spirits only; the other four presumably

consisted of herbarium material. The total paid, exclusive of the material in spirits, was more than 232 gulden. At the then current prices of specimens, as indicated by actual examples in the same journal, it may be supposed that the Karwinski collection at Munich comprised more than 1000 and perhaps as many as 2000 specimens. A short note in *Flora* (vol. 15, p. 480, 14 Aug 1832) says that Karwinski has returned to Munich with a herbarium of 1200 species. Whether or not this number represents the sum total of what the collector obtained in Mexico, or merely what he carried with him on his return, I cannot say. Zuccarini (*Flora* 15: 586–592, 7 Oct 1832) says that in addition to what Karwinski has sent back over the years, he now has a herbarium of 700 species from the mountains of Oaxaca. A note in *Flora* for 1832 (vol. 15, p. 407), says that the museum in Vienna bought 194 of Karwinski's Mexican plants in 1830, two years before he returned to Europe. Martius (*Flora* 11: 367, 21 Jun 1828), in a note written on June 12, recorded the receipt from Karwinski of a collection of about 40 species of cacti, thought to have come mostly from Oaxaca. Other notes published between 1828 and 1832 attest the fact that collections of Karwinski's plants, both living and dried, were being received in Munich.

Within a few months after Karwinski's return to Munich in 1832, Zuccarini began publishing accounts of the collections. A preliminary note, listing some new species by name, has already been mentioned (*Flora* 15: 586–592). An expanded study by the same author was then published in a long *Beiblatt* accompanying *Flora* for 1832.

Specific Mexican localities visited by Karwinski on his first trip have occasionally been cited in botanical literature, but by far the greatest numbers of his specimens have been cited merely with a very general locality, e.g. "Mexico" or "Oaxaca." There seems to be a good reason for this. The herbarium in Munich (M) contains many Karwinski specimens, but on the basis of sampling carried out over a period of two days in 1966,<sup>1</sup> I estimate that three quarters of them, or perhaps even more, are labelled simply "Mexico" or "in Imperio Mexicano." Some of the remainder bear short hand-written labels, presumably by Karwinski himself, recording the place of collection and the month and year. Oddly enough most of the dated collections were taken between May, 1827, when the collector was working in the mining districts near Pachuca, Hidalgo, and October, 1827, when he was in Mexico City after returning from a trip to another mining area, that near Sultepec, Edo. de México. It seems clear from data taken from rather numerous specimens, that Karwinski was in Hidalgo in May, June, and July. In August he was near Mexico City. His trip to the west, including the ascent of the Nevado de Toluca and a descent into the hot country of the Balsas valley below Sultepec, took place in September. In October he was again collecting near Mexico City (Figure 1).

Except for those described above, I have seen only two dated collections, one from Cristo [near Sultepec] with date May 1828, and one from near Tehuantepec, March 1831. I cannot explain why there are so few labelled collections after a certain date. One possibility is that during the early part of his trip, in the spring and summer of 1827, Karwinski made a practice of labelling specimens individually. Perhaps after completing his work near Mexico in October, 1827, he sent off to Europe all the collections he had accumulated up to that time, before he himself began a new excursion. Later collections, from Oaxaca or from other parts of Mexico, may have been provided with no labels at all, or merely with general designations for each bundle; it seems impossible to say.

Presumably Karwinski travelled to Oaxaca via Tehuacán, then spent most of his time collecting near the mining centers, or on trips toward the Pacific coast. At the time of his visit, and for some years thereafter, centers of the Mexican silver-mining industry were at Yavesía and San Pedro Nolasco, near Ixtlán, across the mountains from the

<sup>1</sup>For many courtesies during my visit, I am very grateful to the Director, Prof. Dr. H. Merxmüller, and to Dr. Annelis Schreiber.

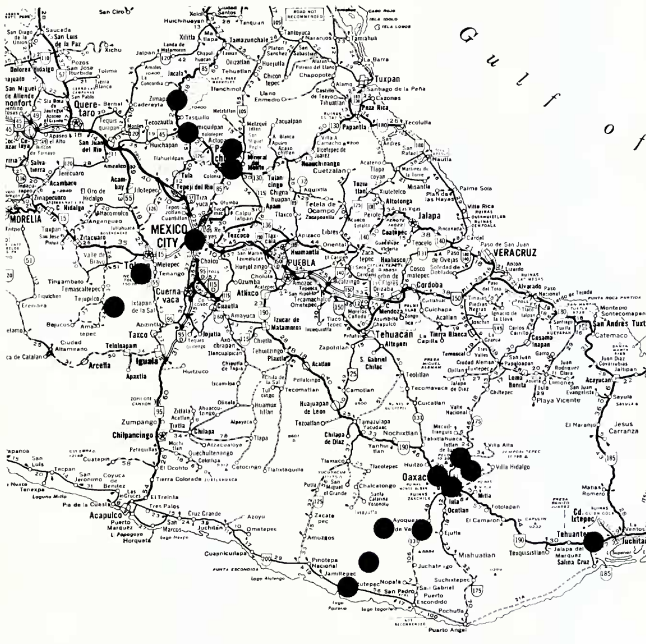


FIG. 1. (above). Localities in México and Hidalgo at which Karwinski is known or reported to have collected plants, 1827–1828; data from the literature and from dated herbarium specimens. (below). Localities in Oaxaca at which Karwinski is reported to have collected plants, presumably 1828–1832; all data from the literature, except for one herbarium specimen from Tehuantepec.

capital city of Oaxaca. The mines were to a large extent supported and staffed by Europeans, and Karwinski, like many other collectors in the ensuing years, apparently found it convenient to make his headquarters at the mines, while collecting in the vicinity.

Localities (all without dates) that have been cited in the literature as sources for Karwinski's plants, include the following from the mining regions north of Oaxaca: Capalpan [Capulpan], Ixtlán, San Pedro Nolasco. One place, "in summo monte Tanga, 10,000 [ft.]" I have not located.

In Karwinski's time it was also possible to travel south from the city of Oaxaca, via Sola de Vega, Teojomulco, and Juquila, to the Pacific coast. Zuccarini says that Karwinski found *Cheirostemon*, the famous "hand-tree," in the region of San Juan Quieix and Juquila, and that he found *Magnolia mexicana* in the same general region, near Jocoatepec and Tututepec, and *Lopezia grandiflora* near "Sant Jago el grande" not far from the ocean. A few other localities cited by different authors probably are from

this southern part of Oaxaca (e.g. St. Augustino, San Bartolo). Karwinski also collected near the capital (Oaxaca), at Santa María del Tule and, as already mentioned, near Tehuantepec. Liebmann, almost 15 years after Karwinski's time, travelled along the Pacific Coast from near Pochutla to Tehuantepec and then returned to Oaxaca by the inland route, but whether or not Karwinski did the same cannot be ascertained at present.

In spite of these known localities, and the inferences that may be drawn from them, almost nothing is known about where Karwinski went or what routes he employed, or how long he stayed, after he returned to Mexico City late in 1827. As most of the localities cited in literature are from Oaxaca, it seems likely that he spent a considerable amount of time in that state. His obituary, as already noted, refers to his "5 jährigen Aufenthalt in Oaxaca." Lasègue (p. 212) says Karwinski's plants were "récoltées principalement dans l'État d'Oaxaca."

Anyone who finds a Karwinski specimen with locality or date, or both, especially from this first trip of 1827–32, will do well to record the data and keep an index to all such specimens.

Karwinski's second trip to Mexico (1841–43) was undertaken when he was 60 years old, under the auspices of five different sponsors in St. Petersburg (now Leningrad). By the terms of his agreement he was to look for plants and animals, and also, primarily, to search for minerals in commercial deposits. His trip was very successful, botanically speaking. He brought back more than 2000 gatherings, in 6 major sets. These were partly named, and distributed about 1851 by the botanist F. J. Ruprecht, who was then working in St. Petersburg.<sup>1</sup> The first set, with the original hand-written field data, went to the herbarium of the Imperial Botanical Garden of St. Petersburg, whereas the duplicates were distributed like any other specimens, but mostly without name or other data. Because so few of the specimens have been distributed to herbaria outside the Soviet Union, and because Russian botanists for the most part have not been actively interested in Mexican botany, the specimens have been little used and seldom cited. Of those that have been noted in the literature, however, not a few are types.

Only Fournier (1886) seems to have made a concerted effort to examine all of Karwinski's specimens of any major group of plants. In the introduction to his work on Mexican grasses, he acknowledges the kindness of [Eduard] Regel, who had placed at his disposition, among other things, "l'importante collection de Graminées de Karwinsky. Bien que récoltée en 1842, cette collection n'avait jamais été l'objet d'un travail d'ensemble et renfermait encore des nouveautés." Fournier cited about 100 gatherings made by Karwinski, including most of the numbers from 943 to 1015 and from 1463 to 1486, in addition to many unnumbered collections (the numbers were those assigned by Ruprecht, after the plants had been arranged in some systematic order).

Most of the specimens collected on Karwinski's journeys from 1841 to 1843 were from the lowlands of northern Veracruz, where few collectors had preceded him, or from the lowlands and mountains of Tamaulipas, where hardly anyone except Berlandier had collected before. As far as I can ascertain, Karwinski was the first collector to reach the uplands of Tamaulipas between Victoria and Miquihuana. As the localities he visited include mines, ranches and other places not on ordinary maps, and as the original hand-

<sup>1</sup> According to Ruprecht's notations the sets were distributed as follows:

- 1) Pro horto Imper. botan. Petrop.
- 2) Pro museo botanico Academiae Imp. Petrop.
- 3) Pro museo scholae saltuariae Petrop.
- 4) Universitate Moscoviensis
- 5) Universitate Kazaniensi
- 6) Universitate Helsingforsiensis

written labels are often cryptic or misleading, it is desirable to describe his itineraries in some detail.<sup>1</sup>

The detailed itineraries for 1841 and 1842, as set forth below, are based primarily on a series of notes preserved in the herbarium archives at LE. It seems to have been Karwinski's practice to pack his specimens in bundles, either from individual localities or from a series of localities visited on a given trip, and to number and label each bundle. About 35 separate clippings, taken from bundles labelled in this way, have been preserved. When these are arranged in numerical order (which also appears to be chronological order), a reasonably complete picture of localities and routes emerges. Additional information can often be supplied from the original labels on individual specimens, but these of course usually do not provide anything of note about the relation of one locality to another.

Apparently bundles I–X included all the plants collected between Papantla and Huejutla, and near Huejutla during the summer months of 1841. Bundles 1–10 included plants collected at Huejutla beginning in October 1841 and on a trip to Horcasitas from which Karwinski returned in December of the same year. A second series of bundles numbered 1–12 included the plants collected from June to August, 1842, on a trip from Victoria across the Sierra Madre and return.

Sometimes the information on a bundle was very specific, e.g.

"No. IX. Huichichilingo 9 Leguas de Huejutla."

"No. 1. Huejutla a fine Octobri 1841 usque ad 5 Nov<sup>re</sup>."

Other bundles evidently included plants from various localities, e.g.

"No. 1. Plantae lectae in proximitate oppido San Miguel de Aguayo (nunc Victoria) in montibus Sierra Madre et in planitie mens. Junii et Jul. 1842."

Still others referred to plants from a part of a long trip, e.g.

"No. 4. Plantae lectae in itinere a Huejutla ad Horcasitas. De San Vicente al Tamuin ad marginibus flum. Panuco 14 leguas in una die pereundas per desertum sine gentes nec aqua."

Many of the localities are still well-known today, and those that cannot be located on modern maps can usually be assigned approximate positions because of Karwinski's practice of recording the distances in leagues ("leguas") between successive localities. The Spanish land-league as used in Mexico was about 4.24 km. Karwinski's estimates agree for the most part with the actual distances, after due allowance for the well-known elasticity of distances in areas remote from urban centers, and the differences between modern roads and the more devious routes of the year 1840.

The archives apparently do not include any of the bundle-wrappings (if indeed any were prepared) for the plants collected in 1843. Usually, however, as in 1842 and sometimes before, Karwinski prepared one small field-label for each gathering. These were usually in Latin, occasionally in Spanish or German. The label usually includes no more than a brief locality-name, and the month and year of collection (these latter often

<sup>1</sup>For essentially all the information presented here on Karwinski's collections in 1841–43, I am indebted to the authorities of the Komarov Botanical Institute of the Academy of Sciences, USSR. The herbarium of the Institute (LE) was very graciously made available to me during my visit in July 1975, when I was permitted to consult not only the original specimens and such duplicates as have gravitated to Leningrad since 1850, but also to use and study material on Karwinski from the herbarium archives. I am especially grateful to Dr. I. A. Linczevski, who aided me in many ways.

I have tried to set forth as far as possible the details of the itineraries of 1841–43, as these were derived from documents at LE and from other sources. I have not tried to supply background information on Karwinski himself, or on the circumstances of his journey. There is much additional information in the archives in Leningrad, and it is to be hoped that botanists in the Soviet Union will eventually complete the study of which this is a small part. A note on Karwinski was published by V. I. Barabanov in 1974, among the abstracts of papers presented at a meeting in honor of the bicentennial of G. I. Langsdorf (Kalesnik, 1974). I am grateful to Dr. Andrei Bobrov for calling this to my attention.

omitted). Occasionally there are notes on vernacular names or local uses, sometimes a Latin binomial.

The specimens were not consistently numbered by the collector. Sometimes he began short series of numbers for specimens from a single locality, or for different species of one genus (e.g. numbers up to at least 31 were assigned to specimens from Tanquecillos in October, 1842). When the entire collection was returned to St. Petersburg, however, it was sorted into systematic order by family and genus, and numbers were arbitrarily assigned, presumably by Ruprecht. The series began with the Ranunculaceae (*Clematis*), and ended with the non-vascular cryptogams. According to Ruprecht's notes, the set put aside for the Imperial Botanical Garden at St. Petersburg included 2177 numbers, but in the enumeration compiled by the same author, only 1136 numbers are listed, including 1096 from Mexico, 26 from Havana, 11 from Florida, and 3 from Dog Key, Bahamas.

Few data were copied from the original set when the duplicates were distributed, so most of the duplicate sheets bear no more information than the number assigned by Ruprecht, plus in some few instances the name of the plant. Mostly, therefore, locality-data for any particular number must be sought on the primary set at LE, to which the original field-labels were attached.

#### Itineraries of 1841–1842

Karwinski arrived in the West Indies in the early autumn of 1840. At one point he was interrupted by a shipwreck. He spent at least a short time in the Bahamas; he collected a few specimens near Apalachicola, Florida (November), and several more near Havana (December, and January 1841). From Havana he took ship for Veracruz, where he arrived about the first of February. The Danish botanist F. M. Liebmann, after a trip of 56 days from Europe, landed in Veracruz on 7 February 1841 (Dansk Ugeskr. II. 1: 186. 1842), and joined forces with Karwinski for a joint pack trip northward through the lowlands. As Liebmann wrote on February 21st,

Mexico's present situation makes it to a certain extent advisable with combined strengths to brave the dangers with which a completely demoralized population, anarchy and lawlessness will each day confront us. . . . The interior swarms with bandits who unpunished rob and murder with the utmost audacity. . . . The only part of the Mexican population which one still dares to trust are the Indians, and we have therefore, on our journey decided to choose the Indian districts as much as possible for our stays.

On 26 February the two travelers set out (DU II, 1: 201) for the north by the coastal road to Tuxpan. They seem to have spent about two weeks on the road, and collected at least at the following localities, turning away from the coast at Rancho Nuevo:

La Antigua [Veracruz]	19° 19' N
San Carlos	19° 24' N
Paso de Doña Juana	19° 29' N
Laguna Verde	19° 44' N
El Morro de Boquilla	19° 51' N
Rancho Nuevo	19° 57' N
Hda. de Sta. Bárbara	19° 58' N, 96° 36' W

From near Santa Bárbara the party turned southwest some 12–13 km to Colipa, where they spent the next 27 days (DU II, 1: 202), or apparently about until the first of April. Liebmann commented on Colipa as follows:

Colipa, which is the first purely Indian town we have come to on our trip, lies 10 leagues from the coast between mountains covered by the most luxurious virgin forests of whose wealth of trees

one can best form an idea when I note that Karwinsky together with an Indian in 8 days got a wood collection of 100 different hardwoods in specimens an ell long and 6 inches thick. Our stay in Colipa was extended to 27 days partly because of the rich returns, partly because of the impossibility of getting lodgings in Misantla, the main depot of the vanilla trade, as we had first decided.

From Colipa Liebmann and Karwinski moved to Jicaltepec, some 8 km SW of Nautla. Liebmann left for the south probably toward the end of April, and Karwinski continued to turn inland and toward the north. He seems to have reached Papantla, Ver., before mid-May, then to have continued without much pause to Huejutla, in the lowlands of northeastern Hidalgo, which was to be his base of operations for the next 5 or 6 months (Figure 2).



FIG. 2. Karwinski's route from Veracruz to Huejutla, and that from Huejutla into eastern Tamaulipas, both in 1841; data from Veracruz to Papantla are taken chiefly from Liebmann's collections, and for the other localities from the archives at LE.

Papantla to Huejutla [May–Jun 1841].<sup>1</sup>

Papantla, Ver.	
Coazintla [Coatzintla, Ver.]	[20° 29' N, 97° 27' W]
Rancho de Mesa de Mecatepec, Ver.	[20° 33' N, 97° 30' W]
Tehuacán, Ver.	[20° 44' N, 97° 32' W]
Paso Real, Ver.	[20° 55' N, 97° 36' W]
Hda. de Chapopote, Ver.	[20° 56' N, 97° 41' W]
Hda. de Tamatoc [Tamatoco], Ver.	[21° 04' N, 97° 51' W]
Rancho de Monte Grande, Ver.	[21° 07' N, 98° 02' W]
Rancho de la Pastoría, Ver.	[21° 06' N, 98° 08' W]
Huejutla, Hgo.	[21° 08' N, 98° 25' W]

By August 4 Karwinski was making an excursion from Huejutla to the nearby settlement of Ixcátán, so he may well have been established in Huejutla by mid-July.<sup>2</sup> The airline distances along his routes from Papantla to Huejutla amount to something on the order of 175 km, and the trails and packroads of Karwinski's time were certainly longer than this; the entire journey may have taken some weeks. If he spent 3 weeks to a month in Papantla in May, and a month *en route* between Papantla and Huejutla, he could have been in the latter place as early as the beginning of July. From Huejutla Karwinski seems to have made several excursions, both long and short, on botanical business, during the second half of the year 1841.

There are various indications among the materials at LE that Karwinski made a trip from Huejutla to Tampico, but I have not been able to establish firm dates or a precise itinerary for this. Some herbarium labels read: "Plantae lectae in itinere ab Huejutla ad Tampico." At least one original label (no. 846, *Sabal mexicana*) reads "in magna silva palmera incipiens ad Tantoyucca usque Tampico 35 leguas." About 1856, and presumably for some years before (Alvarez & Durán, 1856, p. 286), the regular stage route from Mexico City to Tampico passed through Tantoyuca and continued on to the northeast, the distance from Tantoyuca recorded as 34 leagues. It is possible (but I have no evidence for this) that Karwinski went to Tampico and returned to Huejutla in September or October, 1841. Notes referring to some plant-specimens from Huejutla state specifically that these plants were collected "a fine Octobri usque ad 5 Nov<sup>re</sup>," so that the collector may have been traveling before this time.

There are also notes suggesting that Karwinski was in Tantoyuca in February 1842, perhaps at that time on his way to Tampico. I cannot account for his time between February and June, 1842; in the latter month he was in Ciudad Victoria, Tamps., ready to begin a long trip into the mountains to the westward.

Fournier (1886) cites specimens collected at or near Córdoba ["Cordova"], Ver., some of them in February. It may be that Karwinski travelled from Huejutla to Córdoba early in 1842, although this seems rather unlikely; perhaps more likely is the suggestion that after his first arrival in Veracruz early in 1841, he made a quick trip up to Córdoba and returned to Veracruz in time to go north with Liebmann, who was not ready to travel until late in February.

Information from herbarium labels and other materials at LE indicates that Karwinski made short excursions from Huejutla, e.g. to Ixcátán, Hgo., in early August, and to Huichichilingo [Huitzitzilingo, Hgo.], probably about the same time. By his own statement he was in Huejutla in October and early November, 1841, and again from the end of December 1841 to early January, 1842. In the intervening time he made a trip

<sup>1</sup>In the lists below, modern equivalents of place-names are given in square brackets if necessary, as are coordinates in latitude and longitude if known. Distances in leagues are those given on the original papers. Dates in brackets are approximate.

<sup>2</sup>Numerous specimens among the duplicates at LE are labelled as from Colipa, with the date 22 July 1841. I suspect that this is an error, as other indications point to Karwinski's having become established at Huejutla by this time or before.



of some weeks' duration through the coastal lowlands of northern Veracruz, eastern San Luis Potosí, and southern Tamaulipas; he probably did not return to Huejutla until almost the end of December.

from Huejutla, Hgo.	[21° 08' N, 98° 25' W]	[*4 leg <sup>S</sup> ]
to Chiconamel, Ver.	[21° 14' N, 98° 27' W]	[ 3 leg <sup>S</sup> ]
to Rancho de las Piedras, [S.L.P.?)	[21° 22' N, 98° 30' W]	[ 3 leg <sup>S</sup> ]
to Rancho de Limón [not located]		[ 6 leg <sup>S</sup> ]
to Corozal, Ver.	[21° 33' N, 98° 32' W]	[ 7 leg <sup>S</sup> ]
to Rancho del Humo [not located]		[ 3 leg <sup>S</sup> ]
to San Vicente, S.L.P.	[21° 44' N, 98° 34' W]	[14 leg <sup>S</sup> ]
to Tamuin, S.L.P.	[22° N, 98° 46' W]	[ 9 leg <sup>S</sup> ]
to Hda. del Limón, S.L.P.	[22° 11' N, 98° 44' W]	[ 3 leg <sup>S</sup> ]
to Rancho del Tullillo, S.L.P.	[22° 17' N, 98° 41' W]	[ 7 leg <sup>S</sup> ]
to Hda. del Naranjo, Tamps.	[22° 29' N, 98° 38' W]	[10 leg <sup>S</sup> ]
to Cerro Bernal, Tamps.	[22° 47' N, 98° 37' W]	
via Tantoyuquita, Tamps.,	[22° 33' N, 98° 34' W]	
Tantasneque [Tancasnequi, Tamps.]	[22° 34' N, 98° 32' W]	
and Rancho del Carrizo, Tamps.	[22° 44' N, 98° 29' W]	

From the peak of Bernal, Karwinski undertook a short trip to the Hda. del Cojo, said to be 5 leagues distant. Returning by the same route, he continued as follows:

from Hda. del Cojo	[22° 52' N, 98° 23' W]	[ 7 leg <sup>S</sup> ]
to Horcasitas [Magiscatzin, Tamps.]	[22° 48' N, 98° 42' W]	[10 leg <sup>S</sup> ]
to Escandón [Xicoténcatl, Tamps.]	[23° N, 98° 59' W]	[16 leg <sup>S</sup> ]
to Santa Bárbara [Ocampo, Tamps.]	[22° 50' N, 99° 20' W]	[ 8 leg <sup>S</sup> ]
to Palmitas [not located] [*et retro ad Horcasitas].		

On the return from Horcasitas to Huejutla, "in mense Decembri 1841," the route was as follows:

from Horcasitas		[ 5 leg <sup>S</sup> ]
to Cardiel, Tamps.	[22° 41' N, 98° 40' W]	[ 8 leg <sup>S</sup> ]
to Hda. del Naranjo, Tamps.		[10 leg <sup>S</sup> ]
to Hda. del Limón, S.L.P.		[ 5 leg <sup>S</sup> ]
to Rancho de Tampacoala [Tampacualab, S.L.P.] [ca 22° 10' N, 98° 52' W]		[ 8 leg <sup>S</sup> ]
to Tamuin, S.L.P.		[thence]
to Chico[name] "prope Huejutla"		

On this last trip Karwinski, according to notations on herbarium specimens, was at the Hda. del Naranjo in "mid-December," and at El Tamuin on December 19, 1841. This fits in with the suggestion, previously made, that he returned to Huejutla just before the end of the month.

#### Travels in the mountains of Tamaulipas and Nuevo León

This trip, during July and August, 1842, is well documented by the notes taken from the wrappings of Karwinski's plants (Figure 3). The collector apparently left from Victoria in the latter part of June and returned in the latter part of August. Traveling at first toward the southwest and then westward, he crossed the Sierra Madre near Miquihuana, turned northward into the desert of southern Nuevo León, then again eastward into the upper canyons of the Río Blanco<sup>1</sup> drainage near present Aramberri.

<sup>1</sup>Fournier and others have cited specimens from "between Victoria and Río Blanco," as if there were two contiguous or at least nearby localities. Evidently, however, such a phrase as written merely means that the specimen was collected somewhere between the two ends of the journey.

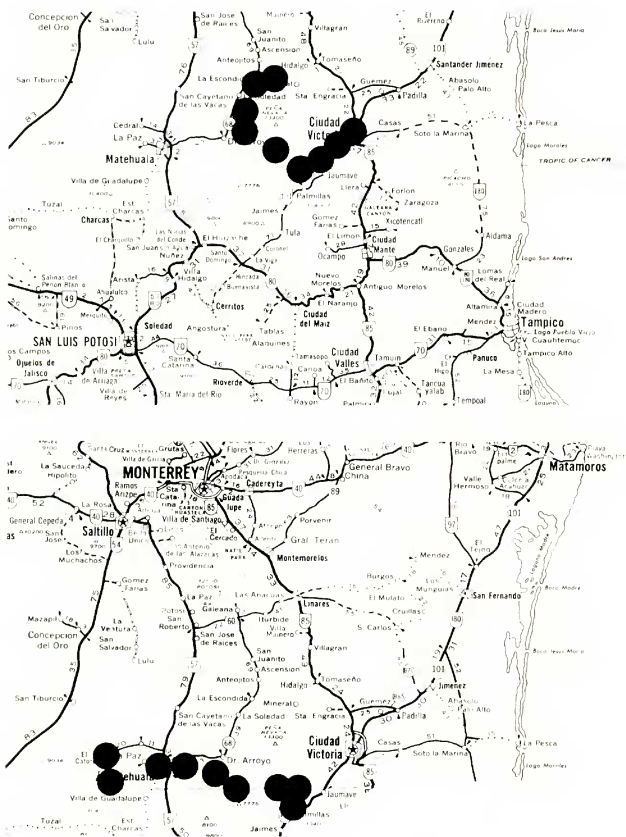


FIG. 3. (above). Karwinski's route between Victoria and Río Blanco, 1842; data chiefly from the archives at LE. (below). Karwinski's route to Matchuala and Catorce, 1843; data chiefly from the archives at LE.

He returned to Victoria by essentially the same route, collecting at this season also. His itinerary was as follows:

from Victoria, "per Cañon de las Minas"  
to La Mula, [Tamps.]

[23° 36' N, 99° 17' W]

[14 leg<sup>S</sup>]  
[12 leg<sup>S</sup>]

to Hda. de Hernández ["per Valle de Jaumave"; not located]		[ 6 leg <sup>s</sup> ]
to Hda. Santyaguillo [Santiaguillo, Tamps.]	[23° 27' N, 99° 34' W]	[ 6 leg <sup>s</sup> ]
to [or through] Cañon de Palmillas [not located]		[ 6 leg <sup>s</sup> ]
to Tanque Colorado [not located]		[ 5 leg <sup>s</sup> ]
to La Miquiguana [Miquihuana, Tamps.]	[23° 35' N, 99° 47' W]	[ 5 leg <sup>s</sup> ]
to Tanque de Miquiguana [not located; possibly the same as Tanque de Equia, Tamps.]	[23° 34' N, 99° 55' W]	[14 leg <sup>s</sup> ]
[via "La Baxada del Puerto del Rapcho de la Bolsa" (N.L.), 23 Jul 1842; 23° 44' N, 100° 02' W]		
to Tanquecillo(s), N.L.	[23° 53' N, 100° 02' W]	[12 leg <sup>s</sup> ]
[via Cañon de Pastli]		
to La Escondida, N.L.	[24° 07' N, 99° 55' W]	[ 6 leg <sup>s</sup> ]
[via Cañon de Pastli]		
to Río Blanco, N.L.	[ca 24° 06' N, 99° 49' W]	

The return to Victoria seems to have been by essentially the same route. Many collections were made in July and August on the way out, and in August on the return, from "La Miquiguana in sumitatibus montium et in planitie," from "Tanque Colorado per sumitate montium (la Cumbre)" to Santiaguillo, through the valley of Jaumave, and finally down the Cañon de las Minas to Victoria "fin. Aug. 1842."

I cannot account well for Karwinski's time during the rest of the year 1842. Rather numerous specimens dated "Oct 1842" are labelled as from Santiaguillo, or from Tanquecillo. Most of the plants so labelled appear to be characteristic species of the forested semi-arid interior valleys, not desert species, so it may be that this Tanquecillo is not the same as the one where Karwinski collected in July and August. At the former locality he collected such well-known desert plants as *Larrea tridentata* and *Parthenium argentatum*.

#### Trip to Matehuala and Catorce, Jan–Apr 1843

During the first 4 months of the year 1843, Karwinski collected many specimens in the vicinity of the mines at Matehuala and Catorce, San Luis Potosí, and along his routes to these places and on the return to the vicinity of Santiaguillo, Tamps. No direct records of his travels have been preserved, but from original notations on herbarium specimens at LE the following provisional itinerary is suggested. The dates are those recorded on the specimens.

Jan	Santyaguillo [Santiaguillo, Tamps.]	[23° 27' N, 99° 34' W]	
Feb	from Palmillas, Tamps.	[23° 18' N, 99° 32' W]	[6 leg <sup>s</sup> ]
	to Rancho de Palo Blanco, Tamps.	[23° 27' N, 99° 42' W]	
	[then via ?Bustamante and/or Miquihuana]		
	to Medina, N.L.	[23° 24' N, 100° 07' W]	[6 leg <sup>s</sup> "W"]
	to Las Boquillas, N.L.	[23° 33' N, 100° 19' W]	
Feb–Mar	to San Antonio, S.L.P.	[23° 41' N, 100° 29' W]	["prope"]
Feb–Mar	Matehuala, S.L.P.	[23° 39' N, 100° 38' W]	
Feb	via Rancho de la Palma [not located]		
Feb	to Catorce, S.L.P.	[23° 41' N, 100° 53' W]	["prope"]
Feb–Mar	Sierra de Marroma [Maroma], S.L.P.	[ca 23° 32' N, 100° 51' W]	
	[return via Matehuala?]		
Apr	"prope Calabacita [not located] et Medina"		
Mar	La Santoña [not located; see below]		
Apr	"de La Santoña al Pantano" [see below]		
	"El Pantano et a Tanque Colorado" [see below]		
	"El Pantano et in Santyaguillo" [see below]		
	Palmillas, Tamps.	[23° 18' N, 99° 32' W]	
	[?to] La Guazacana [Huazacana, Tamps.]	[23° 08' N, 99° 28' W]	
	[?to] "Rancho San Rafael prope Sta. Barbara" [see below]		
May	Tampico "ad littore mare."		

I have not been able to place on any map the localities called Calabacita, La Santoña, El Pantano, Tanque Colorado, or Rancho San Rafael. It may be supposed that Calabacita is near Medina, though this is not necessarily so. Evidently San Rafael is near Santa Bárbara, that is to say Ocampo, Tamps. The other three names are associated so many times, either in time or by direct mention, with known localities, that it seems clear they are all in the mountains of Tamaulipas in the general area of Palmillas, Santiaguillo, and Miquihuana. On the trip out in 1842, Tanque Colorado was said to have been 6 leagues from Cañon de Palmillas, and 5 leagues from La Miquihuana. Among the collections made in July and August of that year, there are several with such notations as "Cañon Palmillas de Santyaguillo al Tanque Colorado." A note in the archives at LE gives the distance from Tanque Colorado to Santyaguillo, on Karwinski's return trip in August, as 7 leagues.

I suspect that El Pantano was the mine at nearby Bustamante, the so-called Real del Pantano. At this period the mine was active, as were the mines at Miquihuana (cf. Alvarez & Durán, 1856, pp. 446, 449; García Cubas, 1884, p. 221). Probably Karwinski's visits to the Miquihuana—Bustamante—Santiaguillo area were all related to his interest in mining; presumably he visited the Matchuala—Catorce area for the same reason.

There is no direct reference to the whereabouts of La Santoña that I can find, except that on some labels the locality is given as "de la Santoña al Pantano," suggesting that it is not far from Bustamante; it may have been another mine.

When the chronological sequence of the above localities is considered, it suggests that Karwinski returned from Matehuala late in March, 1843, to spend some weeks in the Miquihuana—Bustamante—Santiaguillo area. The other dated localities in April and May suggest that he turned south from Palmillas and travelled by way of Huazacana to Santa Bárbara (i.e. Ocampo). From Santa Bárbara the lowland routes to the coast were already known to him from his travels in 1841. The discovery of additional dated specimens from other localities may confirm or discredit these suggestions.

#### LITERATURE CITED

- Alvarez, José J., & Rafael Durán. Itinerarios y derroteros de la República Mexicana. [1-7], 8-480, [481-484]. México, 1856.
- Fournier, Eugène. Mexicanas Plantas 2 [Gramineae]: 1-XIX, 1-160, 10 pl. Paris, 1886.
- García Cubas, Antonio. Cuadro geográfico, estadístico, descriptivo é histórico de los Estados Unidos Mexicanos. 1-XXXI, 1-474, I-III. Mexico, 1884.
- Hemsley, W. Botting. Biologia Centrali-Americana. Botany 4: 123. Mar 1887.
- Kalesnik, S. B., et al. [ed.] Problemy issledovaniya Ameriki v XIX-XX vv. (Tezisy dokladov k konferentsii, posvyashchënnof 200-letiyu so dnya rozhdeniya akademika G. I. Langsdorfa). 106, [iii] pp., Leningrad, 1974. [includes V. I. Barabanov, Ekspeditsiya V.-F. Karvinskogo v Meksiku i na Kubu (1840-1843 gg.), pp. 37-41].
- Lasègue, A. Musée botanique de M. Benjamin Delessert. [1-10], 1-588. Paris, 1845.